



Application of monetary valuation in Life Cycle Assessment

Literature review and survey among practitioners

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B. Weidema, The ecoinvent centre; M. Pizzol, Aalborg University / Development and Planning; M. Brandao, European Commission / Joint Research Centre; J. Garcia, SCORE LCA; P. Osset, Solinnen SAS. Monetary valuation, or monetarisation, is the determination of the economic value of non-market goods, i.e. goods for which no market exists. Although monetary valuation has a great potential to be applied in Life Cycle Assessment (LCA), in particular in the weighting phase, several challenges limit its diffusion in the field, which resulted in only a few applications so far. This study evaluated different methods for monetary valuation with respect to their relevance in LCA. The specific objectives were: (i) to review systematically, analyse critically, and evaluate existing monetary valuation methods, as well as existing LCA-applications of these methods for converting (LCA) results quantified in physical units into monetary units; and (ii) to assess to what extent monetary valuation is used by the LCA community and what barriers limit its diffusion. After identifying and classifying monetary valuation approaches, methods, and LCA applications via a keyword-based literature review, their key features, strengths, and weaknesses were determined. Monetary valuation methods and their LCA applications were then evaluated according to a comprehensive set of criteria including: *Scientific foundation; Documentation; Completeness; Uncertainty; Complexity; LCA relevance & compatibility*. Two web-facilitated surveys were performed to collect primary information on: (i) the extent of monetary valuation use in LCA; (ii) which monetary valuation methods are used; and (iii) the opinions of the practitioners and decision makers. LCA practitioners and consultants were identified by using publicly available lists of practitioners, via scientific associations, the network of the project participants, and popular LCA forums. The critical review encompassed 8 monetary valuation methods and 12 applications for LCA. For the two surveys, the total number of respondents was 209. The critical review showed that observed- and revealed-preference methods and the abatement cost method have limited applicability in LCA, whereas the conjoint analysis method and the budget constraint method are the best options for monetary valuation in LCA. The web-based survey among LCA practitioners showed a large interest in and support for monetarisation in LCA, but also a smaller group of respondents with legitimate objections to monetarisation. The surveys revealed a need for education and information about what monetarisation is and does.